THE DETERMINANTS OF COMMERCIAL BANKS' INTEREST MARGIN IN MALAYSIA: AN ANALYSIS FROM THE MICRO PERSPECTIVE

By

GOH SEAH PENG

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DEDICATION

To

My ever supporting family members.

Thank you.

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ABSTRAK

Tujuan kajian ini adalah untuk menyelidik faktor-faktor yang menentukan kadar faedah bersih untuk bank perdagangan di Malaysia daripada aspek mikro. Faktor-faktor mikro yang terpilih dalam kajian ini ialah kos overhed, peruntukan hutang lapuk dan ragu, modal and jumlah pinjaman kewangan. Data dikumpul dari kunci kira-kira dan penyata untung rugi daripada sepuluh bank perdagangan tempatan dan empat bank perdagangan bukan tempatan dari tahun 2002 ke 2005. Dapatan analisis menunjukkan bahawa kos overhed berupaya menjadi faktor penentu kadar faedah bersih, dan diikuti oleh modal dan jumlah pinjaman kewangan. Kos overhed yang tinggi biasanya akan dibiayai oleh pelanggan bank dengan menurunkan kadar faedah simpanan ataupun meninggikan kadar faedah pinjaman. Kajian ini menyimpulkan bahawa bank perdagangan di Malaysia sepatutnya perlu fokus untuk mengawal kos overhed kerana keberkesanan bank perdagangan sebagai institusi pengantara kewangan adalah penting untuk meningkatkan pertumbuhan ekonomi negara.

ABSTRACT

The purpose of this study is to investigate the determinants of commercial banks' interest margin in Malaysia, mainly from the microeconomic perspective. The microeconomic factors selected under this study are overhead expense, loan loss provision, capital and the amount of loan. The data are collected from the balance sheet and profit and loss of ten local commercial banks and four foreign commercial banks in Malaysia from year 2002 to 2005. The results obtained from regression analysis suggest that overhead expense has the most positive significant effect on banks' interest margin and followed by capital and loan. The costs of higher overhead expense are usually passed on to customers either by reducing the deposit rate or by increasing the lending rate, resulting in higher interest margin. As such, this study concluded that commercial banks in Malaysia should focus more in controlling their overhead expense as their efficiencies as financial intermediaries are important drivers to the economic growth as a whole.

Chapter 1

INTRODUCTION

1.0 Background

The banking industry in Malaysia started in the early 1900s following the rapid economic development brought over by rubber plantation and tin industry. In 1913, Kwong Yik (Selangor) Banking Corporation (now known as Malayan Banking Berhad) was established and became the first Malaysian domestic commercial bank. Since then, the banking industry has continued its growth and flourished until the establishment of Bank Negara Malaysia (Bank Negara Malaysia) in 1959 to govern and oversee the operations and activities of the numerous banks in the country. Bank Negara Malaysia is a statutory body which is wholly owned by the Federal Government and its main objectives are to (1) promote monetary stability and a sound financial structure; (2) act as a banker and financial adviser to the Government; (3) issue currency and keep reserves safeguarding the value of the currency; and (4) influence the credit situation to the advantage of the country.

Since 1970, Malaysia had taken a more liberalized approach in its financial sector reform to strengthen its financial system which included trade liberalization policies and interest rate deregulation. However, to mitigate the world economic recession impacts on Malaysia, the market-determined interest rate mechanism was abolished in 1985 but it was later reintroduced in 1991 (Williamson & Mahar, 1998). The liberalization policies adopted by the Malaysian government seemed to have worked well in its early stage and the growth in the banking industry has been very encouraging with total financial resources of the system amounted to RM915.2 billion as at end of 1996 (Bank Negara Malaysia Annual Report, 1996).

In 1997, Malaysia's economic turmoil began following Thailand's devaluation of the Baht in July 1997 which has evolved into a full blown Asian Financial Crisis. Malaysia was no exception to this contagious effect which saw a few drastic changes at local front. Ringgit depreciated substantially from MYR2.50 per USD to much lower level of up to MYR4.80 per USD and the Kuala Lumpur Stock Exchange's composite index fell from approximately 1300 to nearly merely 400 points in just a few weeks. In contrast to other Asian countries who have been turning to International Monetary Fund (IMF) for assistance, Malaysian government refused the economic aid from IMF which came with austere lending conditions but has instead imposed capital controls and pegged the Malaysian Ringgit at 3.80 to a US dollar for self recovery.

The eruption of the Asian Financial Crisis also saw the vulnerability and fragmentation of domestic banking institutions. In the aftermath of the crisis, several steps have been taken by the Malaysian government in an effort to improve the banking system. On 29 July 1999, Bank Negara Malaysia announced an industry-wide merger and acquisition program for the domestic banking institutions which aimed to merge domestic banks and finance companies into a small number of groups. This was the first step taken to strengthen the banking system to provide a platform towards a stronger and more efficient banking industry in facing the growing competition in the global business environment. Others include a more prudent risk management and governance, a more dynamic regulatory framework, supervisory oversight and surveillance.

After a few mergers and acquisitions, the number of local commercial banks has now been reduced to 10 anchor banks only from the initial 56 institutions. Inclusive of 13 foreign banks, this brings the number of commercial banks in Malaysia to 23, as shown in Table 1.1

Table 1.1
Commercial Banks in Malaysia as at 31 December 2005

Local Commercial Banks

1. Affin Bank Berhad
2. Alliance Bank Malaysia Berhad
3. AmBank (M) Berhad
4. Bumiputra-Commerce Bank Berhad
5. EON Bank Berhad
6. Hong Leong Bank Berhad
7. Malayan Banking Berhad
8. Public Bank Berhad
9. RHB Bank Berhad
10. Southern Bank Berhad

Foreign Commercial Banks

11. ABN AMRO Bank Berhad
12. Bangkok Bank Berhad
13. Bank of America Malaysia Berhad
14. Bank of China (Malaysia) Berhad
15. Bank of Tokyo-Mitsubishi (Malaysia) Berhad
16. Citibank Berhad
17. Deutsche Bank (Malaysia) Berhad
18. HSBC Bank Malaysia Berhad
19. J.P. Morgan Chase Bank Berhad
20. OCBC Bank (Malaysia) Berhad
21. Standard Chartered Bank Malaysia Berhad
22. The Bank of Nova Scotia Berhad
23. United Overseas Bank (Malaysia) Berhad

Source: Bank Negara Malaysia Annual Report, 2005.

In a way to better prepare the 10 local commercial banks to be more competitive when the country liberalizes the financial market by year 2007, Bank Negara Malaysia no longer fixes the base lending rate and deposit rate. The rate shall be determined by the bank itself based on its cost of fund. Hence, bank interest margin can be seen as indicators of the efficiency of the banking system. Table 1.2 shows the lending rate and the deposit rate for commercial banks in Malaysia from year 2000 to 2005.

Table 1.2
Interest Rate (%)

	Average rates at end-year					
	2000	**2001**	**2002**	**2003**	**2004**	**2005**
Fixed Deposits						
- 3-month	3.48	3.21	3.20	3.00	3.00	3.0
-12-month	4.24	4.00	4.00	3.70	3.70	3.70
Saving Deposit	2.72	2.28	2.12	1.86	1.58	1.47
Base Lending Rate (BLR)	6.78	6.39	6.39	6.00	5.98	6.00

Source: Bank Negara Malaysia Annual Report, 2005

1.1 Problem Statement

Commercial bank plays a crucial role in the operation of most economies. As a financial intermediary, commercial bank raises fund by taking in deposits from depositors who have surplus of fund and lending that money to borrowers who are in shortage of fund. The spread between the interest rate paid to depositors and the rates charged to borrowers is the source of the bank's profit. In another word, bank is in the business of risk transfer that justifies the interest spread they earn. It is thus crucial to ensure the smooth functioning of the banking system as it has a positive impact on economic growth. A well functioned banking system is able to mobilize household savings and allocate resources more efficiently by diversifying risks and reducing information and transaction costs. It provides an alternative to raise fund through individual savings and promote investment and raise output through borrowing and lending. A study by McKinnon (1973) and Shaw (1973) suggest that better functioning financial systems lead to more robust economic growth. King and Levine (1993) also find that higher levels of financial development are associated with faster economic growth and are concluded the same by Neusser and Kugler (1998) and Choe and Moosa (1999).

With the consolidation of the finance companies and commercial banks, Bank Negara Malaysia continues to transform the banking sector to increase the capacity of the local commercial banks to meet more effectively and efficiently the new changing and differentiated requirements of the economy. Under the Financial Sector Masterplan, a New Interest Rate Framework was introduced to provide banking institutions with greater flexibility, thus promoting more efficient pricing of products. The commercial banks in Malaysia are now liberalized to quote their base lending rate and deposit rate based on their own cost structure and lending strategies. Effective April 2004, the ceiling on Base Lending Rate (BLR) and the maximum lending spread of 2.5 percentage points above the BLR or cost of funds were removed. (Bank Negara Malaysia Annual Report, 2004). Again, effective March 2005, fixed deposits placed by corporations or large business enterprises and non-residents are on a negotiated basis regardless of the amount placed, hence contributing towards a more market oriented pricing environment for depositors (Bank Negara Malaysia Annual Report, 2005). Hence, bank interest margin, the difference between lending and deposit rate, can be seen as indicators of the efficiency of the banking system. As such, these variables will affect the cost of bank finance for firms, the range of investment projects they find profitable and thus can affect economic growth of the country.

Again, Bank Negara Malaysia has again given its directive to reduce the number of 10 anchor banks to further consolidate the banking industry. Who will remain and who will be driven out from the industry? At the first glance, the most efficient bank will stay but the underlying question is why some commercial banks are more efficient and successful than the others? Why some banks are able to give lower lending rates or higher deposit rates even though they operate under the same economic environment and subject to the same regulatory environment? To what

extend are discrepancies in bank's interest margin due to bank's internal factors which can be under control of bank management? These shall become the interest of this paper to investigate what are the determinants of interest margin of commercial banks in Malaysia, particularly from the micro perspective. In another word, this study shall look at a comprehensive set of bank-specific characteristics, such as overhead expense, loan loss provision, the amount of capital and loan and examine their impact on commercial banks' interest margin.

1.2 Rationale and Justification of Study

Banking is an important driver for growth for any economy. Without a well functioning banking system, the financial sector of the economy suffers which in turn will affect the overall economic growth of the country. The effectiveness of the banking system in channeling funds from surplus to deficit actors is often gauged by examining the spread between lending and deposit rates and by assessing the degree of operational efficiency of the banking industry (Taci & Zampieri, 1998). It is for this reason, the important role that banking industry holds in this country, that has prompted the researcher of this study to invest time and energy to investigate some aspects of banking efficiency in this country, particularly on the commercial banks in Malaysia, by looking at the internal factors that determine their interest margin.

The commercial banks in Malaysia have been chosen as the subjects of this study due to the following reasons:

1) The commercial banks are the largest and the most active financial players in the Malaysian financial system with total branch network of not less than 2,000 as a whole. Their total assets account for 44.1% of the total

financial system asset in 2005 (Bank Negara Malaysia Annual Report, 2005).

2) The availability of data, obtained from the annual report of the respective banks.

The researcher is interested to investigate the bank-specific characteristics affecting the efficiency of the commercial banks in Malaysia. Furthermore, as 10 local commercial banks will still be subject to around round of mergers and acquisitions, this study will also serve as guide to local commercial banks on what are the important internal factors to focus on to improve their operational efficiency.

1.3 Research Objectives

There are many factors affecting the commercial banks' interest margin, such as micro factors (non-interest income, overhead cost, loan loss provisioning, bank size, capital to asset ratio, loan to asset ratio), macro factors (GDP, inflation, unemployment rate, exchange rate) and regulatory requirements (tax rate, reserve requirement ratio, deposit insurance). The objective of this research is to investigate what are the determinants that will affect commercial banks' interest margin from the micro perspective, and thus their efficiency as financial intermediaries in channeling the fund from depositors to borrowers.

1.4 Research Questions

In order to achieve the above-mentioned objective to prove the determinants of commercial banks' interest margin, this study attempts to answer the following research questions:

1) Will a higher overhead expense increase the commercial banks' interest margin in Malaysia?

2) Will a higher loan loss provision increase the commercial banks' interest margin in Malaysia?
3) Will a higher capital increase the commercial banks' interest margin in Malaysia?
4) Will a higher loan amount increase the commercial banks' interest margin in Malaysia?

1.5 Significance of Study

Most studies on determinants of interest margin have focused on the developed countries. While developing countries have gained some attention for this study, little is known about the determinants of interest margin of commercial banks in Malaysia. This study aims to adopt the studies done by the previous researches and investigate if it applies to commercial banks in Malaysia. With this study, it is hope that it will give some insights to the commercial banks on what are the significant internal factors that will affect their interest margin and ultimately their efficiency level so that they can strategize on their business operations. If high margins were caused by higher expenses due to bank's extensive branch network, action in terms of branch rationalization or improved operation procedures would be the optimal solution to increase their efficiency. If high margins were caused by higher non-performing loans, action in terms of prudent risk assessment and monitoring would be more appropriate. Hence, different causes call for different policy actions.

1.6 Definition of Key Terms

Below are the definitions of some key terms used in this study:

1) *Commercial Bank*: A type of financial intermediary raises fund by collecting deposits from businesses and individuals via checking deposits,

saving deposits or time deposits and makes loan to businesses and individuals. Its primary assets are loan and primary liabilities are deposits.

2) *Interest Margin*: Also called Net Interest Margin, in short NIM. It is the name given to a resecuritization of existing residual interest(s) from transactions that are structured with Excess Spread (www.wikipedia.com).

3) *Micro*: It means very small. In economic literature, it refers to the behavior of individual consumers, firms and industries (www.wikipedia.com). In this study, it refers to bank-specific characteristics or internal determinants that that are peculiar to the bank.

1.7 Organization of Chapters

This study is organized in five chapters. The first chapter provides an overall view of this study by introducing the background of the scenario that leads to the need of this research. In addition to that, the direction to be taken in this study is also briefly discussed in this chapter. Chapter 2 provides the literature review and past researchers of determinants of commercial banks' interest margin. This is followed by Chapter 3 which encompasses the research methodology and Chapter 4, which embodies the analysis of the data and its findings. Lastly, Chapter 5 deduces the implications of the findings, concludes the investigation and suggests new areas of research that can be of contributive significance to the related domain.

Chapter 2

LITERATURE REVIEW

2.0 Introduction

The preliminary discussion in Chapter 1 shows the importance of the efficiency of the banking industry towards the growth of the economy. In order to measure the banks' interest margin, which is often viewed as an indicator of the efficiency of the bank, there is a need to analyze the interdependent variables or factors affecting the bank's interest margin.

This chapter seeks to review some related literature on this approach and embodies some past researches, discussions or findings on the determinants of commercial banks' interest margin, which would help the researcher of this study to arrive at the theoretical framework and hypothesis of this study.

2.1 Review of Literature

2.1.1 The Concept of Interest Margin

Interest rate can be separated into two major categories – the deposit rates paid to depositors and the lending rates charged to the borrowers. The difference between the deposit rates and the lending rates is commonly referred to as spread, or interest margin. The size of the interest margin reflects the efficiency of the banks as it reflects the intermediation costs the banks incur in channeling the fund from the surplus unit to the deficit unit. According to Bernanke (1983), interest margin plays a fundamental role because it reflects the efficiency of the credit allocation process. He says the disruption of the 1930s financial crisis of the United States High raises the interest margin between lenders and borrowers, which results the aggregate output to decline. High interest margins are often associated with inefficiency in the banking

systems especially in developing countries (Fry, 1995; Barajas et al. 1999; Randall 1998) because the costs resulting from inefficiency are often passed to the customer by charging a higher lending rate or by paying a lower deposit rate. Hence, interest margin can be considered an appropriate indicator of banking efficiency.

2.1.2 The Interest Margin Measure

According to Demirguc-Kunt and Huizinga (1999), there are two approaches in examining the interest margin – the ex ante approach and ex post approach. The ex ante approach uses the difference between the contractual rates charged on loans and rates paid on deposits. The ex post approach uses the difference between banks' actual interest revenues and their actual interest expenses. The ex post spread differs from the ex ante spread by the amount of loan defaults and the ex post spread is a more useful measure because it controls for the fact that banks with high-yield, risky credits are likely to face more defaults. In addition to that, the data of ex ante spread are generally available at the aggregate industry level and are put together from a variety of sources and hence are not completely consistent. Hence, ex post spread shall be the focus of this study.

2.1.3 The Determinants of Interest Margin

The three major blocks of determinants of commercial banks' interest margin are (1) micro factors which are also bank-internal characteristics such as overhead expense, capital, loan loss provision, loan amount, asset quality, liquid asset and etc.; (2) macroeconomic factors such as GDP, inflation, exchange rate, unemployment rate and etc. and (3) regulatory factors such as deposit insurance, reserve requirement, corporate tax and etc. Studies on the determinants of commercial banks' interest

margin have focused either on a panel of countries or on a particular country. Panel countries study provides cross-country differences in the regulatory environment in which the banks operate.

2.1.3.1 Panel Countries Studies

Abreu and Mendes (2002) investigate the determinants of bank's interest margin and profitability for some European countries in the last decade using a set of bank characteristics, macroeconomic and regulatory indicators. They check whether inflation, exchange rate, economic growth, bank size and capitalization, bank product mix, among others, could be accepted as explanatory variables for interest margins and profitability and conclude that net interest margin reacts positively to operating costs, but pre-tax profits do not, which means that less efficient banks (that is, banks with higher operating costs) charge higher interest rates on loans (or pay lower rates on deposits), therefore passing those costs onto customers. However, competition does not allow them to "overcharge" and thus all banks achieve similar profitability ratio. In their study, Abreu ad Mendes (2002) also find that well-capitalized banks (banks with higher equity/assets) face lower expected bankruptcy costs and thus lower funding costs and higher interest margins on assets, which "translate" into better profitability ratios. The loan-to-asset ratio has a positive impact on interest margins and profitability with proper lending and the ability to maintain low levels of non-performing loans will also increase profit and margin. The inflation rate is relevant in all models but the nominal effective exchange rate does not have any impact on net interest margins and profitability.

A comprehensive review of the determinants of interest margin and profitability is offered by Demirguc-Kunt and Huizinga (1999). Using bank-level data

for 80 countries in the years 1988-1995 and a variety of determinants include bank characteristics, macroeconomic conditions, explicit and implicit bank taxation, deposit insurance regulation, overall financial structure, and underlying legal and institutional indicators, the authors conclude that there is a positive relationship between capitalization and profitability and a negative relationship between reserves and profitability. Foreign banks also have higher profitability than domestic banks in developing countries while the opposite holds in industrial countries. This may be due to the fact that in developing countries, a foreign bank's technological edge is relatively strong, apparently strong enough to overcome any informational disadvantage in lending or raising fund locally. Their study further concludes that inflation is associated with higher interest margin and higher profitability and larger banks also tend to have higher margins. However, banks with relatively high non-interest earning assets are less profitable and banks that rely largely on deposits for their funding are also less profitable, because deposits apparently entail high branching and other expenses. Similarly, variation in overhead and other operating costs is reflected in variation in bank interest margins, because banks pass on their operating costs to their depositors and lenders.

In another extension study by Demirguc-Kunt and Huizinga (2000) on the impact of financial development and structure on bank performance using bank level data from 1990-1997 for a large number of developed and developing countries, they find that a move towards a more developed financial system reduces bank profitability and margin as greater bank development brings about tougher competition, higher efficiency and lower profits. On the other hand, in underdeveloped financial system, stock market development improves bank profits and margins, indicating the complementarities between bank and stock market development. However,

controlling for both bank and market development, financial structure per se does not have an independent effect on bank performance.

A significant study was made by Ho and Saunders (1981), who advocate a two-step approach to explain the determinants of bank interest spreads in panel data samples, which the approach is being adopted by many studies that follow. In the first step, a regression for the bank interest margin is run against a set of bank-specific variables such as non-performing loans, operating costs, the capital asset ratio, etc. plus time dummies. The time dummy coefficients of such regressions are interpreted as being a measure of the "pure" component of a country's bank spread. In the second step, a constant term aims at capturing the influence of factors such as market structure or risk-aversion coefficient is included, which reflect neither bank-specific observed characteristics nor macroeconomic elements.

Based on the approach developed by Ho and Saunders, Brock and Rojas-Suarez (2000) apply the model for a sample of five Latin American countries, namely Argentina, Bolivia, Colombia, Chile and Peru. For each country, the first-step regressions for the bank interest spread include variables controlling for non-performing loans, capital ratio, operating costs, liquidity ratio (the ratio of short term assets to total deposits) and time dummies. Their study shows positive coefficient for capital ratio (statistically significant for Bolivia and Colombia), cost ratio (statistically significant for Argentina and Bolivia) and the liquidity ratio (statistically significant for Bolivia, Colombia and Peru). However, the effect of non-performing loan is mixed. Colombia shows positive coefficient and statistically significant, but the coefficient is negative for the other countries (statistically significant for Argentina and Peru). The authors explain these findings as "a result of inadequate provisioning for loan losses: higher non-performing loans would reduce banks" income, hereby

lowering the spread in the absence of adequate loan loss reserves". In the second step, the authors run a regression for the measure of bank spreads on macroeconomic variables reflecting interest rate volatility, inflation rate and GDP growth rate. Their investigation shows that interest rate volatility increases bank spread in Bolivia and Chile; the same happens with inflation in Colombia, Chile and Peru. For other cases, the coefficients are not statistically significant. In summary, micro variables determine the bank spread in Bolivia; while in Chile and Colombia, the bank spreads are accounted for by both macro and micro variables. As for Argentina and Peru, there is still a large fraction of the spread that cannot be explained by any of the above factors.

In addition to Latin American countries, studies are also made on OECD countries. Saunders and Schumacher (2000) apply Ho and Saunders two-step model to a sample of banks of seven OECD countries, namely Germany, Spain, France, Great Britain, Italy, United States and Switzerland from 1988-1995. Their studies find that the interest margins in the seven OECD countries are affected by the degree of bank capitalization, the opportunity cost of reserves, bank market structure and the volatility of interest rates. In a more comprehensive study by Claeys and Vennet (2004), they use a sample of 2279 banks from 36 Western and Eastern European countries over the years 1994-2001, and provide a systematic comparative analysis of the determinants of interest margins of Central and Eastern European transition Countries (CEEC) banks versus banks operating in the Western European economics. Their studies conclude that capital adequacy is an important determinant of bank margins, both in developed and transition bank markets, but the positive effect of capital adequacy on bank margins is twice as large in the transition countries. The pricing of lending risk plays an important role in explaining high interest margins in

the CEEC. Notwithstanding that, as reform in the corporate sector proceeds, better screening and monitoring and increased competition tend to erode interest margins.

As for the Eastern Caribbean countries, a study by Randall (1998) evidenced that the impact of loan loss provisioning has reduced bank interest margin and operating expenses seem to have a large impact on bank spreads in the Eastern Caribbean region.

Doliente (2003) studies the determinants of banks' net interest margin of four Southeast Asia countries, namely Indonesia, Malaysia, Thailand and Philippines by using bank-specific variables such as collateral, capital, liquid assets, operating expenses and loan quality. His study finds positive effect of capital and operating expenses on interest margin in the region except Thailand. As for collateral, it reduces bank interest margin for Thailand, Indonesia and Philippines, but for Malaysia, collateral tends to increase the interest margin. Collateral tends to reduce the loss exposure of banks and as such the three countries rely a lot on collateral when they set their loan pricing. However, for Malaysia, Malaysian banks tend to increase the interest margin to recover the cost associated with holding foreclosed collateral. Malaysia also shows higher interest margin with declining loan quality, although the effect is not significant.

2.1.3.2 Single Country Studies

Naceur and Goaied (2001) investigate the determinants of the Tunisian bank's performance during the period 1980-1995. They indicate that the best performing banks are those who have struggled to improve labour and capital productivity, those who have maintained a high level of deposit accounts relative to the assets and finally, those who have been able to reinforce their equity. Subsequently, Naceur (2003)

investigate the impact of bank's characteristics, financial structure and macroeconomic indicators on bank's net interest margins and profitability in the Tunisian banking industry for the 1980-2000 period. His study confirms his earlier findings that banks that hold a relatively high amount of capital and with large overheads will usually lead to high net interest margin and profitability. In contrast, size has mostly negative and significant coefficients on the net interest margins because of scale inefficiencies. In contrary to the study of Demirguc-Kunt and Huizinga (1999), Naceur finds no impact of macro-economic indicators such as inflation and growth rates on bank's interest margins and profitability. However, his study supports the subsequent study of Demirguc-Kunt and Huizinga (2000) that stock market development has a positive effect on bank profitability, which confirms the complementarities' effect between bank and stock market growth.

Afanasieff *et al.* (2002) make use of panel data techniques to uncover the main determinants of the bank interest spread in Brazil. Using a two-step approach of Ho and Saunders (1981) to measure the relative relevance of the micro and the macro elements, the results suggest that macroeconomic variables are the most relevant elements to explain bank interest spread in Brazil.

Barajas *et al.* (1999) document significant effects of financial liberalization on bank interest spreads for the Colombian case. Although the overall spread has not reduced with the financial liberalization measures undertook in the early 1990s, the relevance of the different factors behind bank spreads were affected by such measures.

Unlike other Latin American countries, Argentina operates a dual currency system with the widespread use of US dollar alongside the domestic currency. Domestic banks are allowed to intermediate in domestic and foreign currency freely.

Using Argentinean data, Catao (1998) investigates the determinants of the intermediation spread for loan and deposits denominated in both domestic as well as in foreign currencies. Both intermediation margins are related to the average tax ratio, cost of reserve requirements, operating costs, problem loan, exchange rate risk and market structure as measured by the Herfindahl index. The only marked difference between the domestic and foreign currency markets is a positive and significant impact of the market structure on spread for the former markets and a non-significant impact for the latter. Catao observes that such difference reflects "the fact that most peso borrowers cannot arbitrage between domestic and foreign sources of funds, thus becoming subject to the monopoly power of local banks". By contrast, "interbank competition for the typical US dollar borrower is bound to be considerably fiercer and the scope for banks to exert monopoly power over the client is therefore much reduced". For both markets, the intermediation spreads are mostly affected by operating costs and problem loans while the impact of reserve requirements on spread are economically small "reflecting the fact that banks' reserves at the Central Bank are remunerated at interest rate close to that of time deposits".

Angbazo (1997) investigates the determinants of bank net interest margins for a sample of US banks using annual data for 1989-1993. The empirical model for the net interest margin is postulated to be a function of default risk, interest rate risk, an interaction between default and interest risk, liquidity risk, leverage, implicit interest payments, opportunity cost of non-interest bearing reserves, management efficiency and a dummy for states with branch restrictions. The results for pooled sample documents that default risk, the opportunity cost of non-interest bearing reserves, leverage and management efficiency are all positively related to bank interest margins.

Chirwa and Mlachila (2004) investigate the impact of financial reforms on interest rate spread in the commercial banking system in Malawi and their analysis shows that spreads increase significantly following liberalization, and panel regression results suggest that the observed high spreads can be attributed to high monopoly power, high reserve requirements, high central bank discount rates and high inflation.

2.1.4 Summary of Micro Factors

High interest margins have persisted even though most countries have undertaken financial liberalization. With financial liberalization, it is expected that the removal of government controls on interest rates and relaxation of barriers to entry into the financial system would lead to higher competition and lower interest margins of financial institution but the end results are often disappointments to the policy makers. Gelbard and Leite (1999) observe that in many sub-Saharan African countries, the range of financial products remain extremely limited, the share of non-performing loans is large while judicial loan recovery is a problem, the capital adequacy ratio is often insufficient and the interest rate spread is wide even after financial liberation took place. Brock and Rojas-Suarez (2000) note that most policymakers in Latin America have been disappointed that spreads have failed to converge to international levels. Several arguments have emerged for the failure of interest margins in developing countries to converge toward those observed in developed countries. They postulate that financial liberalization cannot be expected to bring to significant improvement in the efficiency of the financial system without changes in banks' behaviors. From the various literature studies above, it can be seen that micro factors, which are internal characteristics pertinent to the respective banks, play an important

role in determining the interest margin of the commercial banks, which in turn reflect their efficiency level as financial intermediaries to transform deposits into financial assets.

2.1.4.1 Overhead Expense

In developing countries, there is overwhelming evidence that high overhead costs are a source of wide interest margins. Overhead costs include employment and wage which may result from inefficiency in bank operations, which the costs are often shift to customers particularly in imperfect markets. Demirguc-Kunt and Huizinga (1999) find evidence of positive relationship between net interest margin and overhead costs. Brock and Rojas-Suarez (2000) and Barajas *et al* (1999) also prove significant evidence of positive relationship between spreads and wages. The study of Doliente (2003) also confirms the positive relationship of the two variables in Southeast Asia countries.

2.1.4.2 Loan Loss Provision

Lack of proper credit control to invest in risky assets to maintain larger market shares often lead to increased risks. This may reduce the quality of assets which in turn may result in a higher proportion of non-performing loans and provision for doubtful debts. Banks tend to offsets the cost of monitoring the bad loans or the forgone interest revenue by charging higher lending rates (Barajas *et al*., 1999) and hence are more likely to widen the spread between lending and deposit rates. Randall (1998) finds support for the positive and significant association between spreads and provision for doubtful debts in the Caribbean countries. Brock and Rojas-Suarez (2000) and Barajas *et al*. (1999) further confirm that the cost of poor-quality assets is

shifted to bank customers through higher spreads in the Colombian financial system. However, Brock and Rojas-Suarez (2000) find a significant negative relationship in the cases of Argentina and Peru and attribute this to poor provisioning for loan losses and deficiencies in supervisory practices.

2.1.4.3 Capital

Saunders and Schumacher (2000) note that the capital that the banks hold to cushion themselves against expected and unexpected risks may lead to high margins. Banks often hold more capital above the regulatory minimum capital requirement for additional credit risk exposure, and the costs of such high capital ratio may be covered by widening the spread between lending and deposit rates. Saunders and Schumacher (2000) provide evidence in developed countries of the positive and significant relationship between spread and capital ratio. For developing countries, where there are often inadequate rules and regulations governing the functioning of the financial system, Brock and Rojas-Suarez (2000) argue that capital to asset ratios mean very little due to inadequate accounting standards and inappropriate classification of the riskiness of the loans. However, for Malaysia, study by Doliente (2003) shows positive relationship between capital and interest margin.

2.1.4.4 Loan

Loans are the most risky assets and hence banks will apply markup pricing for its lending rates. This is also due to the fact that loans are type of assets with the highest operational costs because they need to be originated, serviced and monitored (Claeys & Vennet, 2004). As a result, as more deposits are transformed into loans, the higher the interest margin.

2.2 Theoretical Framework

Based on the above-mentioned 4 factors that determine the commercial banks' interest margin, the following is the theoretical framework to be adopted for this study. The framework and its hypotheses are constructed mainly in reference the studies done by Demirguc-Kunt and Huizinga (1999), Brock and Rojas-Suarez (2000), Barajas *et al* (1999), Saunders and Schumacher (2000), Angbazo (1997) and Doliente (2003). For the study of this research, the researcher only investigates the micro factors, which are internal bank-specific characteristics, in determining the determinants of commercial banks' interest margin in Malaysia in view that the banks are operating in the same macro environment and subject to the same regulatory requirement.

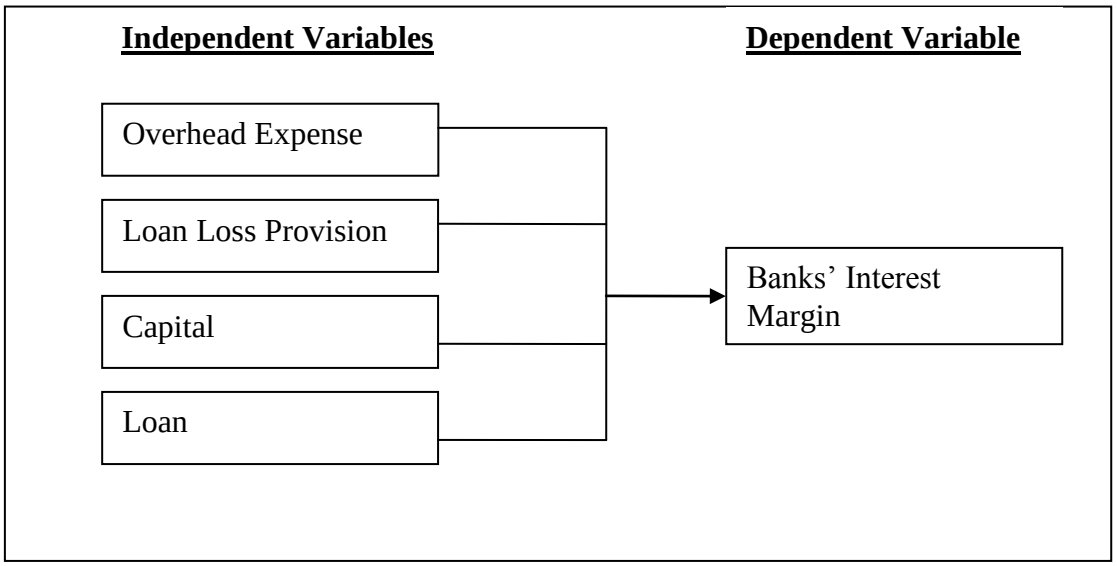

Figure 2.1: Model of the Study

2.3 Hypotheses

Based on the chart of theoretical framework, the hypotheses built for this study are as follows:

H1: A higher overhead expense will increase the commercial banks' interest margin in Malaysia.

H2: A higher loan loss provision will increase the commercial banks' interest margin in Malaysia.

H3: A higher capital will increase the commercial banks' interest margin in Malaysia.

H4: A higher loan amount will increase the commercial banks' interest margin in Malaysia.

Chapter 3

METHODOLOGY

3.0 Introduction

This chapter will deliberate on the methodology details used in this study. It describes the research design, the variables in the study and the various analyses that will be utilized.

3.1 Research Design

This section discusses the following subtopics: type of study and source of data.

3.1.1 Type of Study

This research is basically correlational in nature. Its objective is to examine the relative importance of the independent variables as determinants of commercial banks' interest margin in Malaysia.

3.1.2 Source of Data

This study uses data obtained from the Balance Sheet and Profit and Lost Account of the annual reports or audited accounts of 10 local commercial banks and 4 foreign commercial banks in Malaysia from the year 2002-2005. Although there are 13 foreign commercial banks in Malaysia, only 4 foreign banks, namely HSBC Bank, OCBC Bank, Standard Chartered Bank and United Overseas Bank are selected for analysis in the study. The other 9 foreign commercial banks were excluded as these banks have very limited branch offices and thus limited access to the public for active lending and deposit activities. Year 2002-2005 were chosen for the study as the mergers and acquisitions exercise only completed in year 2002 and the financial